UNC CHARLOTTE
Department of Engineering Technology

LABORATORY SAFETY ANALYSIS

OPERATING THE ARMFIELD FLUIDS BENCH

Location: Smith 103

Required Training: The Armfield Fluids Bench is designed and intended for use by properly trained and experienced operators. If you are not familiar with the proper and safe operation of this apparatus, do not use until proper training and knowledge have been obtained.

Required Personal Protective Equipment (PPE): Safety glasses.

Reference Materials: Manufacturer's safety rules and operating instructions

PHOTOS	TASK	HAZARDS	CONTROLS
	Wear clear safety glasses with side shields.	High pressure water stream	• Students are required to provide their own safety glasses. • See laboratory instructor or laboratory manager if you do not have safety glasses before proceeding to use equipment.
	Inspect safety glasses for cracks, scratches or other defects. Ensure the ANSI standard Z87.1 is stamped into the side of glasses. If necessary inspect leather gloves and face shield.	High pressure water stream	• If defects are found report to your laboratory instructor before using.
	Put on PPE	High pressure water stream	• Wear safety glasses at **ALL TIMES** around this apparatus!
	Inspect work area, walk around area looking for water, oil, or other foreign objects	Slips, trips & falls	• Clean area around apparatus as needed prior to beginning experiment. .
	Visually inspect electrical cord.	Electrical shock	• If the electrical cord is worn, it should be unplugged and tagged "Out of Service-Do Not Use". • This should be reported to the laboratory manager immediately. • Electrical cord replacement should only be conducted by a factory authorized technician or electrician.

	Ensure the electrical cord is connected to electrical outlet.	Electrical shock, injury	• Caution: Apparatus is moveable. **Always** disconnect electrical cord before moving.
	Attach modular experimental apparatus to bench.	High pressure water stream, water leaks	• Never turn pump on until experimental apparatus is connected. • Ensure that the "quick connect" connection to the fluids bench is securely attached. • Ensure that both the supply and drain hoses of the experimental module are not kinked and that the drain hose is routed to the holding well of the fluids bench. • Turn flow control valve to minimum flow prior to turning pump switch on.
	Run experiment	High pressure water stream, water leaks	• Increase flow control valve gradually to avoid excessive flow/pressure. • Monitor supply connection for leaks. • Monitor drain hose especially at higher flow rates to ensure it remains within the holding well of the fluids bench.
	Shut down	Water spills, slips, trips, falls.	• Allow the experimental apparatus to drain thoroughly prior to disconnecting it from the bench. • Never connect or disconnect experimental apparatus with pump running. • If water has been collected/measured in the holding well, drain it back into the fluids bench reservoir.
	Clean work area and return all PPE to clean, dry storage area.	Water spills, slips, trips, falls.	• Ensure adequate housekeeping measures to prevent accidents. • Clean up any areas where water may have collected on the floor around the bench.

For more information about this LSA, contact the *Department of Engineering Technology* at UNC Charlotte (704) 687-2305
Please visit our website at: http://www.et.uncc.edu\

The development of Laboratory Safety Analyses is a very effective means of helping reduce incidents, accidents, and injuries in the workplace. It is an excellent tool to use for training purposes and can also be used to investigate "near misses" and accidents.